CONTENTS.

No. 23.

	PAGE
Officers of the Institute,	III
Members,	VI
Life Members,	XII
Honorary Members,	XII
Associate Members,	XII
Corresponding Societies,	XIII
Naval Institute Prize Essays,	XIV
Necrology,	XVI
Annual Report of the Secretary,	XXI
Treasurer's Report,	XXIV
Chemical Theory of Gunpowder. By H. Debus, Ph.D., F.R.S.	1
Towing Experiments on Models to determine the Resistance of Full-Sized Ships. By Assistant Naval Constructor F. T. Bowles, U. S. N.	81
On the Relation existing between Length of Bore and Muzzle Velocity. By Lieutenant Chas. A. Stone, U. S. N.	99
The Belleville Boiler; Report of the Board of Inspection on the Steam Apparatus of the Despatch Boat Voltigeur (Rear-Admiral Halligon, President). Translated by Professor J. Leroux, U. S. N. A.	103
Rescue of the Trinity's Crew from Heard's Island. By Ensign W. I. Chambers, U. S. N.	121
Professional Notes:	
Collisions at Sea,	131
Test of Dynamo Machines at Paris Exhibition, 1881,	137
Bibliographic Notices,	139
Books Received,	147
American Philosophical Society: Extract from the By-Laws,	149

No. 24.

How may the Sphere of Usefulness of Naval Officers be extended in Time of Peace with Advantage to the Country and the Naval Service?

"*Pour encourager les autres.*" Prize Essay. By Lieutenant Carlos Calkins, U. S. N. 155

"*Semper paratus.*" By Commander N. H. Farquhar, U. S. N. . 195

"*Cuilibet in arte suâ credendum est.*" By Captain A. P. Cooke, U. S. N. 203

The Theory of the Deep Sea Wave. By Assistant Naval Constructor Richard Gatewood, U. S. N. 223

Curves of Stability. By Commander C. M. Chester, U. S. N. . . 257

Notes on the Literature of Explosives. By Professor Chas. E. Munroe, U. S. N. A. 287

Surface Condensers. By Cadet Engineer J. M. Whitham, U. S. N. . 303

Reviews, ... 309

Professional Notes:

The Relations between the Size, Speed and Power of Marine Engines. 311

Naval Museum of Hygiene, ... 328

The Drying of Gunpowder Magazines. By Professor Chas. E. Munroe, U. S. N. 332

Responsibility, ... 335

Bibliographic Notices, ... 339

Books Received, ... 347

No. 25.

THE DEVELOPMENT OF ARMOR FOR NAVAL USE. By Lieutenant E. W. Very, U. S. N.

CHAPTER I. Projectile Energy and Armor Resistance, . . . 349

CHAPTER II. Iron Armor and Smoothbore Guns in Europe, . 365

CHAPTER III. Iron Armor and Smoothbore Guns in the United States, ... 385

CHAPTER IV. Iron Armor and Rifled Guns, ... 416

CHAPTER V. Steel and Compound Armor, ... 463

CHAPTER VI. Inclined Armor. Gruson Chilled Armor, . . 509

CHAPTER VII. Armor Manufacture. Laws of Penetration, . . 543

No. 26.

OUR NEW CRUISERS. By Assistant Naval Constructor F. T. Bowles, U. S. N., Secretary to the Naval Advisory Board.

No. 27.

War Schools. By Commodore Stephen B. Luce, U. S. N. . . . 633
Naval Intelligence. By Ensign Charles C. Rogers, U. S. N. . . 659
The Evolution of Courts-Martial. By Lieutenant Nathan Sargent, U. S. N. 693
Water-Line Defence and Gun-Shields for Cruisers. By Passed Assistant Engineer N. B. Clark, U. S. N. 713
Notes on the Literature of Explosives. By Professor Charles E. Munroe, U. S. N. A. 735
Deck Chart-Board. By Lieutenant Albert Ross, U. S. N. . . . 759
Professional Notes:
Electricity applied to Explosive Purposes. By Sir Frederick A. Abel, C. B., F. R. S., Hon. M. Inst., C. E. 767
On the Tension of Winding Wire Guns. By Ensign Philip R. Alger, U. S. N. 793
Petroleum as a Source of Emergency Power for War-ships. By Passed Assistant Engineer N. B. Clark, U. S. N. . . . 798
The Steam Engine Indicator as a Detector of Lost Motion. By Robert Grimshaw, M. E. (Journal of the Franklin Institute,) . 803
Bibliographic Notices, ... 805
Additions to Library, ... 815